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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,781	02/16/2005	Uwe Pauluhn	2001P19538WOUS	8705
7590 Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830			EXAMINER ELPENORD, CANDAL	
			ART UNIT 2616	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/524,781	<b>Applicant(s)</b> PAULUHN ET AL.
	<b>Examiner</b> Candal Elpenord	<b>Art Unit</b> 2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>16 February 2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 7-8** are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al (US 2002/0060985 A1).

**Regarding claim 7**, Lee et al. discloses a method for managing resources (“controlling a traffic stream to flow in reverse direction when link failure occurs”, recited in paragraph 0021, lines 1-9) when establishing a substitute path (“backup path”, recited in paragraph 0031, lines 1-9 and fig. 3, Backup LSP) from a source node (fig. 3, LSR1 Ingress) to a terminal node (fig. 3, LSR8 Egress) in a transparently switchable network (fig. 3 and fig. 4, MPLS network, recited in paragraph 0020, lines 1-5) for signal transmission (“fault indication signal”, recited in paragraph 0041, lines 1-6), wherein the source node (fig. 3, LSR1 Ingress) and the terminal node (fig. 3, LSR8 Ingress) are connected to a plurality of network nodes (fig. 3 and 4, “nodes LSR5, LSR7, LSR2, LSR10 and LSR12”) having interposed link sections (fig. 3, 4 and 5, “plurality of links-LSR4-LSR3 and LSR3-LSR10”, recited in paragraph 0039, lines 1-5) the method (“controlling a traffic stream to flow in reverse direction when link failure occurs”, recited

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in paragraph 0021, lines 1-9) comprising: providing switching devices in the network nodes (fig. 4, see LSR2, LSR5, LSR7 as the MPLS nodes with switches), in the source nodes (fig. 4, Ingress LSR1, LSR9 and LSR11), and in the terminal nodes (fig. 4, LSR8) for switching a plurality of paths (fig. 4 and fig. 5, "protected Point-to-Point LSP and loopback path) for signal transmission between the source node (fig. 3, LSR1 Ingress) and the terminal node (fig. 3, LSR8 Egress); utilizing a first network resource (fig. 5, LSR2 and LSR10 and LSR12 as the network nodes controlled by the source nodes) controlled by the source node (fig. 5, Ingress LSR1, Ingress LSR9 and Ingress LSR11) for the signal transmission and for switching of the link sections (fig. 5, within one of the paths (fig. 5, protected point-to-point LSP, and Loopback path "plurality of links-LSR4-LSR3 and LSR3-LSR10", recited in paragraph 0039, lines 1-5), wherein the signal transmission is interrupted upon occurrence of an imperfection ("sensing failure occurring in the link", recited in paragraph 0033, lines 1-7) in the one path ("failure in link", recited in paragraph 0022, lines 9-10) and an error message ("fault indication signal", recited in paragraph 0041, lines 1-6) is transmitted from a network node (fig. 3, LSR3, recited in paragraph 0041, lines 1-6) to the source node (fig. 3, Ingress LSR, recited in paragraph 0041, lines 1-6), the network node (fig. 4, LSR6 sensing failure and stream transfers upstream to LSR4", recited in paragraph 0033-0034) arranged upstream of the imperfection ("link failure", recited in paragraph 0034, lines 1-7) relative to a signal transmission direction ("path of an upstream", recited in paragraph 0015, lines 3-12) determining, upon receipt of the error message ("receiving fault indication signal and switching of traffic stream to a backup label switched path", recited in

paragraph 0017, lines 1-9) by the source node a substitute path (fig. 4, "loop-backs in reverse direction", recited in paragraph 0036, lines 1-8-flow of traffic in reverse direction after link failure) for rerouting the signal transmission ("loopbacking of traffic stream in reverse direction", recited in paragraph 0022, lines 1-10) around the imperfection ("sensing failure and fast rerouting", recited in paragraph 0040, lines 1-8) using a control signal ("control signal and fault indication signal", recited in paragraph 0040, lines 1-8) generated by the source node (fig. 4, LSR3 which detects the failure in the link, recited in paragraph 0040-0041); and establishing a second resource (fig. 5, LSR11, fig. 4, "selection of LSR4-LSR3 for transferring the loopback traffic", recited in paragraph 0036, lines 1-8) for switching the link sections (fig. 5, links LSR10-LSR3) of the substitute path (fig. 5, Loopback path traffic flow after failure, recited in abstract, lines 5-12 and "backup path", recited in paragraph 0031, lines 1-9 and fig. 3, Backup LSP) such that only such link sections disposed in the rerouting (fig. 4, link LSR6-LSR8 as the disposed links) and in need of reswitching are newly switched by the network nodes (fig. 4,5, "nodes 3 and 10" as those involve in the rerouting) included in the rerouting, wherein the second resource (fig. 4 and fig. 5, LSR4 receiving the loopback an selection of a path", recited in paragraph 0034-0035) is established using the control signal ("fault indication signal/control message", recited in paragraph 0040, lines 1-8) and the first resource (fig. 4 and 5, LSR1 as the ingress resource), and wherein switched link sections (fig. 3, 4 and 5, "plurality of links-LSR4-LSR3 and LSR3-LSR10", recited in paragraph 0039, lines 1-5) common to the path and the substitute path (fig. 5, Loopback path, "LSR6-LSR4, LSR4-LSR3 and LSR14-15) are maintained.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 8-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 2002/0060985 A1) in view of Nathan et al (US 6,052,210).

**Regarding claim 8**, Lee et al. discloses the method ("controlling a traffic stream to flow in reverse direction when link failure occurs", recited in paragraph 0021, lines 1-9), wherein the maintained switched link sections commonly assigned to the original path (fig. 3, 4 and 5, "plurality of links-LSR4-LSR3 and LSR3-LSR10", recited in paragraph 0039, lines 1-5) and to the substitute path (fig. 5, Loopback path, "LSR6-LSR4, LSR4-LSR3 and LSR14-15) and the necessary switching of the link sections of the rerouting (fig. 4 and fig. 5, loopback traffic flow after failure, paragraph 0040, lines 1-8), **regarding claims 11-14**, Lee et al. discloses the method ("controlling a traffic stream to flow in reverse direction when link failure occurs", recited in paragraph 0021, lines 1-9), wherein, when there is a plurality of imperfections in the path (fig. 5, "failures in the plurality of links", recited in paragraph 0038, lines 1-3), firstly the imperfection (fig. 5, "failure in link LSR2-LSR3) nearest to the source node (fig. 5, LSR3 or LSR2) is rerouted around with a first substitute path (fig. 5, Loopbacked to ingress LSR9 after failure", recited in paragraph 0038-0039) and thereafter the other imperfections (fig. 5, "failures in the plurality of links", recited in paragraph 0038, lines 1-3) in succession upstream are rerouted around with further substitute paths (fig. 5 multiple loopbacked paths after failure" recited in paragraph 0039-41).

Lee et al. discloses all the subject matter of the claimed invention with the exception of being silent with respect to the following features: **regarding claim 8**, the release of the link sections from the original path no longer used in the substitute path

are controlled by setting up the second resource from an updating of the first resource at the respective nodes, **regarding claims 9-10**, the method, wherein the link sections disposed in the rerouting are switched with a minimum number of new switchings by the network nodes, **regarding claims 11-14**, wherein the resource of one of the substitute paths to be established is updated from the previous established resource of the path or substitute path, and wherein switchings of identically used link sections between the original path and the respective substitute paths are maintained.

However, Nathan et al. in a similar field of endeavor discloses the following features: **regarding claim 8**, the release ("decoupling of port upon failure and the link sections", recited in col. 7, lines 4-34) of the link sections from the original path ("upon detection of failure, the optical network nodes finds alternate path", recited in col. 8, lines 13-32-the links section in the original are not used) no longer used in the substitute pat (fig. 1A, Alternate links/paths 152, 150, 154, recited in col. 3, lines 54-67 and col. 4, lines 1-11) are controlled by setting up the second resource (fig. 1, Spare Fibers, recited in col. 8, lines 13-20) from an updating ("transition from failure mode to normal operation", recited in col. 7, lines 35-46 and col. 7, lines 1-34 and 46-59 and fig. 3, Event 304 and Action 306) of the first resource (fig. 1A, Optical Cross Connect 104, recited in col. 3, lines 62-67) at the respective nodes (fig. 1A, Ring nodes 112-120, recited in col. 54-61), **regarding claim 9**, the method ("routing/carrying data traffic to an alternate path in reverse direction during ring nodes' failure", recited in col. 3-4, lines 59-67 and lines 1-34) wherein the link sections disposed (fig. 1A-1B, "primary links/paths 156,136,144", recited in col. 3, lines 12-24) in the rerouting ("transfer of data in the



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reverse direction using the spare path", recited in col. 3, lines 35-50) are switched (after the failed link has been repaired, the optical controller of ring node transition to normal of operation with minimal switching, recited in col. 7, lines 35-46) in with a minimum number of new switchings ("switching commands", recited in col. 5, lines 32-47) by the network nodes (fig. 4A, fig. 4B, "coupling and decoupling of optical network ring nodes from failed link mode to normal mode of operation", recited in col. 6-7, lines 35 and lines 1-45) , **regarding claim 10**, the method ("routing/carrying data traffic to an alternate path in reverse direction during ring nodes' failure", recited in col. 3-4, lines 59-67 and lines 1-34), wherein the link sections disposed (fig. 1A-1B, "primary links/paths 156, 136, 144", recited in col. 3, lines 12-24-the primary paths are the links that are bypassed due failure) in the rerouting ("transfer of data in the reverse direction using the spare path", recited in col. 3, lines 35-50) are switched (after the failed link has been repaired, the optical controller of ring node transition to normal of operation with minimal switching, recited in col. 7, lines 35-46) with a minimum number of new switchings ("switching commands", recited in col. 5, lines 32-47) by the network nodes (fig. 4A, fig. 4B, "coupling and decoupling of optical network ring nodes from failed link mode to normal mode of operation", recited in col. 6-7, lines 35 and lines 1-45), **regarding claim 11-14**, wherein the resource (fig. 1A, "plurality of Optical ring nodes 112, 120, 116 and 122) of one of the substitute paths (fig. 1A, Alternate links/paths 152, 150, 154, recited in col. 3, lines 54-67 and col. 4, lines 1-11) to be established is updated ("transition from failure mode to normal operation", recited in col. 7, lines 35-46 and col. 7, lines 1-34 and 46-59 and fig. 3, Event 304 and Action 306) from the previous established resource of the path

("detection of failure and routing traffic to an alternate path", recited in or substitute path, and wherein switchings of identically used link sections between the original path and the respective substitute paths are maintained ("transition back to normal mode of operation after the failed links are repaired", recited in col. 2, lines 21-37-implications that links between the original and alternate are maintained). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Lee et al. by using features as taught by Nathan et al. in order to withstand multiple link failures and to provide self-healing in the network nodes (See col. 1-2, lines 54-67 and lines 1-13).

7. **Claims 15-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Nathan et al (US 6,052,210) as applied to claims 8-14 and further view of Flanagan et al (US 5,933,258).

Lee et al. and Nathan et al. disclose all the subject matter of the claimed invention with the exception of the following features: regarding **claims 15**, The method, wherein at each network node switching between channels is carried out for the transmission of signals with differing granularities. However, Flanagan et al. in a similar field of endeavor discloses the method ("protecting a plurality of bidirectional optical communication links in the event of a fault on the working channel", recited in col. 3, lines 37-50), wherein at each network node ("optical port", recited in col. 3, lines 22-33) switching between channels ("optical channel", recited in col. 3, lines 22-33) is carried out for the transmission of signals ("receiving of optical signals", recited in col. 3, lines 22-33) with differing granularities ("receiving and transmitting of optical signals with a

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first and second wavelengths", recited in col. 3, lines 22-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Lee et al. with Nathan et al. by using features as taught by Flanagan et al (US 5,933,258) in order to provide protection and to control optical switches (See col. 2, lines 21-61 for motivation).

**Claims 16-22** are rejected for the same reasons as claim 15, they have the same limitations as claim 15.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chow et al (US 7,289,428 B2), CAO et al (US 2002/0181485 A1), Nederlof et al (US 5,590,118) are cited to show methods and systems that are related to claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Candal Elpenord whose telephone number is (571) 270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CE

KWANG BIN YAO  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Kwang Bin Yao', is written over the printed name and title.